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ABSTRACT

The findings of a study team on the preservation of library materials are presented in three sections. The first section, which is a general analysis of the factors which created the current situation, discusses the library in its institutional setting; external factors affecting preservation, including publishing trends, developments in the library profession, and the emergence of preservation; major concerns of preservation problems; and planning assumptions regarding a preservation program. The second section presents recommendations which are organized under five broad headings: (1) administrative coordination of preservation policies, (2) environmental factors, (3) physical protection of library materials, (4) physical treatment of materials, and (5) education for preservation. An implementation strategy for carrying out the recommendations concludes the report. Two appendices are provided, including a time table for completion of tasks. (RBF)

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PRESERVATION IN THE DARTMOUTH COLLEGE LIBRARY

A Report Prepared for the Librarian of the College

September 30, 1981

ARL-OMS-PPP Study Team:
Philip N. Cronenwett, Chair
Shirley Grainger-Inselburg
Jeffrey Horrell
William S. Moran
Melanie Nietmann Norten
Cynthia Pawlek

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INTRODUCTION

Preservation of library materials has become a major concern of the library profession. The enormous cost, not only in initial investment but, more important, in the destruction of our written heritage, makes it unacceptable to acquire resources and simply allow them to slowly disintegrate on library shelves. It is far less expensive to establish sound preservation practices than to restore or replace a damaged collection. Further, in many instances, materials destroyed through neglect *cannot* be replaced.

Dartmouth College Library has been actively concerned for some time with the preservation of its holdings. It was fortunate to be chosen as one of three research libraries in the United States to test the Preservation Planning Program of the Office of Management Studies (OMS), Association of Research Libraries. In 1979, OMS received a grant from the National Endowment for the Humanities to design a self-study program for preservation planning. As one of the test institutions, the Library was given a small grant to cover its basic costs.

Dartmouth's participation in the project began in March, 1981 with an on-site visit by OMS Preservation Consultant Pamela W. Darling. Ms. Darling met with a six member Study Team to plan the strategy of the three-phase test. The first phase, which continued into April, consisted of a careful study of the library in its setting, external factors affecting preservation, preservation history of the library, and a plan for the next phase of the program. The first phase was completed on April 17 with a preliminary analysis presented to the Librarian on that date.

The second phase of the program also began in April with another visit from Ms. Darling. The Study Team along with eighteen other Library staff members broke into five Task Forces to study environmental factors, physical condition of the collections, preservation organization, crisis management, and resources. The work of the Task Forces resulted in *Needs Assessment*,* a 425 page report presented to the Librarian on June 5. This was a pivotal phase of the program, since the Task Force investigated all areas of the library system so that recommendations based on sound data could be made.

The final phase of the self-study was the development of recommendations. Each of these has been placed in context and, in some cases, explained in great detail. None will be found whose need is not thoroughly and completely documented within the body of the *Needs Assessment* report. Where applicable, a time frame has been added. Many of the recommendations can be carried out independently, while others must be completed in sequence. The context of each recommendation will indicate, if need be, the order of implementation.

The following report is a comprehensive statement of the Study Team's findings, dealing with all aspects of preservation as they apply to Dartmouth College Library. The report consists of three sections, the first of which is a general analysis of the factors which have given rise to the current situation.

The second section describes in some detail the most significant part of the Study Team's work, its recommendations. Three crucial recommendations must be singled out. The first is the appointment of a Standing Committee on Preservation (Recommendation 1). This committee would be charged with the oversight of preservation in all of its aspects within the Library. The need for such a committee is imperative and, without it, the remainder of the recommendations will be much more difficult to realize.

The second major recommendation treats the problem of crisis management (Recommendation 8). Dartmouth College Library has been fortunate in that it has not as yet suffered any major fire or water related disasters. The Study Team believes it is essential

*See Appendix I.

that a disaster plan be drawn up and kept current and a trained disaster team be assembled so that crises can be met quickly and effectively.

The third critical recommendation is climate control (Recommendation 4). This is admittedly the most expensive recommendation and therefore more difficult to achieve. However, climate control immediately solves many of the problems associated with deteriorating materials. For this reason, the Study Team believes that the Library must begin without delay to seek funding for the installation of climate control within key areas.

An implementation strategy concludes the report. This section will be a useful guide to the Librarian as new preservation measures are instituted. The Study Team is under no illusions that all recommendations can be put into practice immediately. Given the fiscal constraints under which the College must function, many recommendations must necessarily be set aside until grants are awarded or donors found. It is vital, however that the work go forward.

PROJECT PARTICIPANTS

TASK FORCE A: Environment
- Shirley Grainger-Inselburg, Chair
- Jonathan Brown
- Chantal Cleland
- Kathryn Pyle

TASK FORCE B: Physical Condition of the Collections
- William S. Moran, Chair
- Kathleen Clapham
- John Crane
- Helen Rocke

TASK FORCE C: Organization and Operation of Preservation Functions
- Philip N. Cronenwett, Chair
- Patricia B. Fisken
- Cheryl T. Naslund
- Diana Seymour

TASK FORCE D: Crisis Management
- Cynthia Pawlek, Co-chair
- Melanie Nietmann Norten, Co-chair
- Stanley Brown
- Marjorie Bryce
- Martha Cordova

TASK FORCE E: Resources
- Jeffrey Horrell, Chair
- Ralph Cryesky
- Mary Davis
- Jeanne Hatch

I. THE CURRENT SITUATION

A. THE LIBRARY IN ITS INSTITUTIONAL SETTING

Dartmouth College Library is a private, non-profit research library. It houses the largest collection of printed materials in northern New England, with over 1.3 million books, 100,000 maps, 864,000 microform items as well as manuscripts, audio-visual materials, and artifacts. The Library is actually a system of eight libraries composed of Baker Memorial Library, holding materials in the humanities and social sciences, and seven more specialized libraries with collections in the Arts, Sciences, Medicine, Business, and Engineering. In 1969 Dartmouth College Library joined the Association of Research Libraries, and a decade later the College became a member of the Research Libraries Group.

The administration of the Library system reports to the Provost and includes the Librarian of the College and two associates: the Director of User Services and the Director of Collection Development and Bibliographic Control. A support staff of one hundred and professional staff of thirty provide service in every area typical of a major research library. The annual budget is over four million dollars.

As a supporting facility for teaching and research of high calibre the Library's growth has reflected the objectives of its parent institution over its two-century history. In recent years two major trends have substantially affected the direction of this growth. First, the emergence of interdisciplinary programs has greatly widened the collecting scope. Problem-oriented research which crosses traditional disciplinary boundaries has created a need for new and expanded information services. Second, the realization that the Library could no longer build self-sufficient research collections has led to increasing reliance on computer technology and cooperative networks. Dartmouth's reaction to these developments was prompt and far-sighted; it quickly entered a successful program of automation. Although technology is transforming the ways in which libraries are storing and providing information, these same forces have generated a greater demand for services and for the use of ever more fragile materials. Thus Dartmouth's commitment to the Research Libraries Group, an undertaking enabled by modern computer technology, has allowed for refinement of the Library's collecting scope yet expands the usual services to a much broader user population.

In keeping with its service goals to a wide range of users the Library will continue to collect materials in all formats. Although it is recognized that paper is likely to remain the most common format for book and serial publications in the foreseeable future, it is current policy to acquire microform for permanent retention of many serials. With support of the college and aid from a private donor, the Library was able to build the Jones Microtext Center. This facility is one of the most progressive in the country for the acquisition, use, and preservation of microform.

While the College's interest in preservation is only in its incipient stages, the Library has already taken important steps toward a preservation program. Based on a 1976 survey by a staff member of the New England (now Northeast) Document Conservation Center, a number of suggested procedures were instituted. All of the librarians are conscious of preservation concerns and the staff now includes a person with preservation training. A small conservation workshop has been established to carry out basic preservation work such as cleaning, deacidification, and mending. Above all, the current thrust at Dartmouth is to coordinate every library operation with an organized, integrated, and coherent preservation policy.

B. EXTERNAL FACTORS AFFECTING PRESERVATION

1. Publishing Trends

Since 1950, change has dominated the publishing industry. Advances in offset printing, book production, and binding have enabled publishers to produce books quickly in large quantities, in both paperback and hardbound formats. However, mass production has also often resulted in limited durability. Inferior binding and poor quality paper, particularly in paperback books, pose special preservation problems. Small press publications, whose high standards of design and production have enriched American publishing, exemplify the need to use appropriate preservation methods preventively. But many of these works have very limited press runs and consequently are both valuable and irreplaceable.

Microform publishing has continued to thrive as library space diminishes and collections deteriorate. Yet there is nothing inherent in microform which makes it less vulnerable to gradual destruction than conventional paper. In fact, fiche and film are more easily damaged and worn through use than are books. Manufacturers of user equipment must become more concerned with the need to preserve microform if the full potential of this format is to be realized.

Competing with the book, new media such as audiovisuals, television, and computer-based communications have had a large impact on libraries. Computer-Output-Microfiche (COM) is becoming a significant medium as more materials are translated into machine-readable form. These media, too, have their particular preservation requirements.

2. Trends in Scholarship

Since World War II federal sponsorship has altered radically the nature of academic inquiry. Emphasis is no longer on pure research but on more pragmatic investigations promising solutions to the complexities of human existence.

The repercussions of this shift in research focus are manifested in academic life in a variety of ways. One of the most significant has been the evolution from a formal communication system based on the printed page to one which is largely paperless (ie., electronic). As a result, research libraries have invested heavily in information and retrieval systems to provide on-line access to indexing and abstracting services.

The hardware necessary for this kind of communication also falls within the realm of preservation concerns. For example, much electronic equipment will not function properly when subjected to extreme variation of temperature and humidity. Data tapes, too, must be stored in climate-controlled areas to prevent disintegration.

3. Developments in the Library Profession

To continue providing resources and services required by today's users, libraries are turning to cooperative networks for assistance, a development hastened by the combination of static budgets and escalating expenses. Member libraries agree to lend or exchange their materials and services within the network on a reciprocal basis. Guaranteed accessibility of materials has also given support to a complementary concept: cooperative collection development. Under such an arrangement, participating libraries would decide on subject areas in which each would collect intensively, with a concomitant agreement to share these resources.

Pooling professional skills is another aspect of increasing collaboration among libraries. An outstanding example is the Academic Library Program brought about through the combined efforts of three agencies: the Council on Library Resources, the Association of College and Research Libraries, and OMS. One component of the Academic Library Program is the establishment and training of a corps of consultants with

expertise in various facets of library operation. These consultants then help local staff members to assess their library's performance in the context of a changing environment. The preservation planning project just completed at Dartmouth is only one illustration of the assistance available through this Program.

A proposal to build a National Periodicals Center represents an attempt to promote interlibrary cooperation and preservation on a large scale. The Center would maintain holdings for as many periodicals as possible, providing access through photocopying or loans. It would not only preserve its own materials but would also film, and thereby preserve, deteriorating literature held elsewhere.

There is an obvious need for a nation-wide coordinating organization of some kind. In response to this need, the Association of Research Libraries endorsed a statement requesting the federal government to set up a national library agency. Such an agency could offer a variety of service programs (e.g., preservation) on a permanent basis. It could also act as a bibliographic clearinghouse, locating information and linking subject data bases into a system serving all members of the research community. While preliminary planning has been funded by private and governmental sources, continued federal support must be assured if the agency is to become viable.

Lack of a national library agency has been mitigated partially by the existence of regional on-line systems like OCLC, Inc. (formerly the Ohio College Library Center, Inc.), RLIN (Research Library Information Network), and WLN (Washington Library Network). The systems have furnished libraries with large union catalogs, making it possible to supply patrons with materials not locally owned. Although the benefits are unquestionable, participation in any electronic network also involves maintenance and preservation of the necessary equipment.

4. The Emergence of Preservation.

Several reliable surveys have verified earlier estimates that one-third of the holdings in research libraries have deteriorated almost beyond use. A combination of inferior materials, improper handling, and damaging environmental conditions are seriously endangering collections.

Because of the acid quality of the paper on which they were printed, many books published since the mid-nineteenth century become very brittle within fifty years; most twentieth century books deteriorate even faster. Efforts to perfect a cheap, effective deacidification process to combat this destruction began as early as 1930. The Council on Library Resources has promoted deacidification research for the past twenty-five years, partly through its support of the William J. Barrows Research Laboratory, one of several laboratories investigating preservation problems. Although CLR terminated its funding of the lab in 1977, a number of technological advancements were made, most notably the "Barrow morpholine process". This technique for mass deacidification of whole books was a major step toward the development of processes to treat entire collections.

By 1980 research progress made it possible to think of preservation as a practical reality rather than an ideal but unobtainable state. Two procedures, in particular, merit specific mention: the first was the invention by Richard D. Smith of a nonaqueous deacidification solution which could be applied by spraying, immersion or brushing. The second, a mass deacidification process, the diethyl zinc process, was patented by the Library of Congress in 1977 and involves the use of a volatile, toxic compound in a large vacuum chamber.

The Preservation Committee of the Research Libraries Group is working on other means of saving threatened materials. One of their proposals is to identify certain American titles published during the high-risk period between 1850 and 1900, catalog them on-line through the use of RLIN, their data base, and then to microfilm them. Another

project will create computer codes, or tags, to indicate fragile, vulnerable materials catalogued on the RLIN system.

Many academic libraries are beginning to recognize their preservation problems and are taking steps locally to solve them. In the past the impetus for preservation has often come from rare book and manuscript librarians, as well as archivists. More recently, circulation, binding, and technical processing staff members have come to share this concern for the condition of materials and have become involved in preservation campaigns. These may range from in-house efforts such as educating staff and patrons in the proper handling of books, to attempts at influencing external factors, for example the ordering of publications printed on acid-free paper whenever possible. Nevertheless, movements to control and correct these problems have been hampered by a lack of qualified preservation specialists. Appropriately trained personnel is a *sine qua non* for the success of any large-scale program.

C. KEY AREAS OF CONCERN

Preservation problems at Dartmouth cluster within several discrete areas of concern. First, there are those connected with the physical plant. Each building in the system varies in type of construction, general condition, and age, and consequently each is subject to different kinds of damage. For example, steam leaks and broken water mains have been responsible for most of the problems in the Baker and Sherman Libraries. Problems at Paddock Library are compounded by its location below ground in a swampy area. Clogged drains in Dana Library and a laboratory above Kresge Library have wreaked havoc on library materials. All of these emergencies have resulted in an expensive clean-up and restoration process.

A second important area is the identification of vulnerable materials. At present, there is no system of earmarking materials for a recognized life span at the time of purchase. The Library has had to deal with damage after the fact, relying on weeding as a means of discovering what needs attention. Baker has an on-going weeding program carried out by the selection officers. Although Dana (in 1963), Feldberg (in 1973) and Kresge (in 1974) had opportunities to weed their collections before they were moved from Baker Library to their new locations, they do not currently have continuing programs. Dana has removed its pre-1870 materials from the open stacks and relocated them in a locked area, while Feldberg has a policy of keeping only the latest edition of a work. The upcoming move to the storage facility will give each Library an opportunity to re-evaluate its holdings.

Although weeding has been the only consistent method used so far to identify damaged books, the circulation process also uncovers dilapidated materials. Circulation policies which control physical access to the collection and define the handling of fragile or valuable items are a crucial element of any preservation plan. All the Libraries have open stacks, though Baker and Dana have locked sections within their stacks where more valuable materials are kept. They, along with Feldberg, also have a closed Special Collections area whose holdings do not circulate. Lending policies for audio-visual materials differ. Microforms are lent only on a limited basis. Dana lends its A-V collection; Paddock currently lends duplicate tapes of its recordings and permits faculty to borrow records, but future plans call for an end to the circulation of any recordings.

Binding is another fundamental area of concern, since badly bound materials lead to a host of preservation problems. All of the materials that are to be hard bound are sent out to Northeast Binders in Medford, Massachusetts, for a "Class A" binding. The Library does limited in-house binding, principally Gaylord binding for paperbacks and certain journals, as well as boxes and portfolios for music and other special items. Though the

majority of scientific publications are still received in hard cover, there has been a shift in the humanities (partly because of publishing practices and partly because of budgetary limitations) to buying more volumes in paperback. These are placed in Gaylord bindings when the gutter of the book is too narrow to allow for Class A binding. Hard bound volumes usually have the title and call number on the spine; Gaylord materials have this information placed on the face of the book. This creates extra strain on the volume, since users must pull out each one from the shelf to see its title.

Questions regarding repair or replacement are often generated by the need to rebind materials. While the Libraries often try to salvage damaged books, inept mending may, in some instances, be worse than no repair at all. Irreparably damaged materials are given to the appropriate selection officer to determine if an attempt at replacement should be made. If it is decided that the volume, though damaged, is more valuable than a replacement, or if a replacement copy is not available, the volume is placed in boards and tied. When appropriate, users are charged for damages or for replacement costs plus processing fees if the volume cannot be repaired.

Prevention is perhaps the most significant of all these areas of concern. Until recently, the Libraries have made only isolated efforts to deal with preservation issues and these have usually been directed at rare book materials. Special Collections in Baker and Dana Library have, for example, been conscientious about using acid-free strips or binders and keeping stack areas clean. There is also an on-going program of treating leather bindings. Through a gift from an alumnus, this program was expanded to include volumes in the Special area of Baker's general stacks. Some oiling has also been done on volumes in the Special sections of Dana and Feldberg.

The Library has always had a close relationship with the Northeast Document Conservation Center, with a member of the Special Collections staff sitting on the Advisory Board. In 1976, a survey was done by the NEDCC to ascertain the condition of the collections in Baker and Dana libraries. The report of this survey eventually led the Library to hire, in 1979, an officer with preservation experience. Since his arrival this librarian has established a preservation workshop located near the bindery. He has also developed a preservation training program for student assistants and has started to train the bindery staff to do cleaning, oiling of bindings, and general inspections of the books in Baker stacks.

Preservation has been an accidental winner in the current fight against energy consumption. Automatic light switches were installed in the stacks to keep lights turned off when an area is not in use. This has drastically decreased the materials' level of exposure to damaging ultra-violet radiation from fluorescent lighting.

D. PLANNING ASSUMPTIONS

1. Seriousness of the Local Preservation Problem

The preceding section cited a few of the factors, including broken water and steam pipes, that have jeopardized library materials. Other equally serious hazards exist which could ruin the collection if they are not remedied. Dirt is an insidious but pervasive example; most Libraries do not have regular cleaning programs for their materials. External activities, such as construction, have altered the air quality within buildings. Constant shifting of materials, a consequence of an acute space shortage, has hastened deterioration. Wide fluctuations in temperature have had a deleterious effect on both collections and their users. Most threatening of all, there have been fires caused by faulty fluorescent light ballasts.

All of these conditions point up a basic lack: the Library does not have a comprehensive disaster plan. Despite its awareness of the need for preservation, the library

community is only now formulating proper and effective techniques to correct this situation.

2. Institutional/Fiscal Constraints

Money, space, and personnel are the primary constraints against the inauguration of a comprehensive preservation program. The fiscal limitations under which the College now operates will most assuredly continue and are an important consideration in this study and in future planning. The problem of space is perpetual, even though the Library has turned increasingly to microform as an economical way of creating more room on the shelves. The new storage facility will greatly ease present crowding, but it cannot be regarded as a complete solution. Finally, financial pressures make it highly unlikely that there will be more than a few persons to oversee preservation programs in the Library.

3. Major Strengths and Resources

The OMS Preservation Planning Program in which the Library is directly involved has been an invaluable source of expertise. The Library's membership in the Research Libraries Group has made it possible to draw on their pilot preservation project, a resource providing important support for specific areas of preservation.

Perhaps the most outstanding strength for the success of a preservation program lies in the considerable number of faculty, librarians, and staff who care about deteriorating collections, disasters, and overcrowded conditions in the Libraries. The Library administration has unequivocally declared its commitment by making a study of preservation a priority among the many competing interests of the Library system.

II. RECOMMENDATIONS

In the second phase of the project the work of the Task Forces produced dozens of specific recommendations aimed at administrative, educational, and physical aspects of preservation activities in the Library. These are listed and thoroughly detailed in *Needs Assessment*, the final report of the Task Forces. Most of this information, however, falls within the five broad categories presented here as headings. Viewed summarily, these categories can be seen as determining the directions for preservation in the Dartmouth College Library. As far as practicable, the recommendations also indicate time and cost factors involved in their application.*

i. *Administrative Coordination of Preservation Policies – Recommendations*

While responsibility for the development of an effective preservation program is shared by all Library staff, its achievement requires both strong administrative backing and a central coordinating agency. Two of the most important requisites emerging from the *Needs Assessment* phase of the project are a standing committee on preservation and formulation of supportive library policies to sustain the work of the committee. Therefore, the Study Team makes the following recommendations.

1. **APPOINT A STANDING COMMITTEE ON PRESERVATION TO CONTINUE THE WORK OF THE PRESERVATION PLANNING PROGRAM STUDY TEAM AND TO COORDINATE PRESERVATION ACTIVITIES FOR THE LIBRARY.**

This committee, consisting of the Director of Collection Development and Bibliographic Control, the proposed Preservation Officer, and six additional staff serving staggered terms of three years, must be formed as quickly as possible. It will continue to gather and organize preservation information and will determine preservation policy for the Library. It will also assist the Preservation Officer in seeing that proper preservation practices are carried out, and will direct appropriate action in disaster situations. To meet these goals over the next two years the committee should:

A. Work with the Library administration and staff to establish and enforce standardized policies for the areas of concern cited by the task forces in the *Needs Assessment* report.
B. Create a Preservation Manual for the Library which incorporates and specifies these standardized policies.
C. Form a Disaster Team (including some members of the standing committee) whose goal will be to provide effective action should a disaster occur. During its first year of existence the team should have as its priority the refinement and completion of a Disaster Manual (Section D. II. of the Preservation Planning Project Phase II Report, *Needs Assessment*).
D. Carry out other recommendations designated in this report which have a goal of completion in one to two years.
E. Set preservation priorities for succeeding years based upon need, feasibility, and cost factors, associated with the long range goals presented in the recommendations.
F. Report annually to the Librarian on progress and, at the same time, present new or revised recommendations for the following year.

2. **PROVIDE ADMINISTRATIVE SUPPORT OF THE RECOMMENDATIONS OF THE PRESERVATION PLANNING PROGRAM STUDY TEAM, ESPECIALLY**

*See Appendix II for a summary timetable

WHERE LIBRARY-WIDE POLICY IS INVOLVED.

The very existence of the preservation study reflects the administration's commitment to conserve library materials. However, the *Needs Assessment* survey made clear that continued firm endorsement at the highest administrative level is required to coordinate a program involving such diverse library operations as funding, personnel, collection development, and technical processing. Recommendations pertinent to each of these areas are:

A. Identify preservation funds within the budget and attempt to increase funding from outside as well as internal sources.

One of the problems encountered by the Study Team is that library expenditures for preservation were not clearly designated, making it impossible to discover the amount of money currently spent for these activities. Preservation funds within the budget, particularly for binding, should be itemized separately, along with more adequate cost accounting. If sufficient funds are to be allocated in the 1982-1983 budget, the Library must, in the next six to twelve months, determine its present spending and estimate the increased cost of carrying out additional measures. As special needs arise, other campus offices should be contacted for funding assistance.

B. Improve the Library's programs through the addition of personnel who have preservation knowledge or participate in preservation activities.

The Study Team is aware that funds for new library positions are extremely limited and that in order to increase the amount of time spent by present staff on preservation functions compromises must be made with other library activities. Nevertheless, it is hoped that the recommendations below be considered when personnel decisions are made.

1. Take into account knowledge and awareness of preservation when interviewing prospective staff.
2. Begin negotiations with the Provost and Personnel Office for the appointment of a qualified, full-time Preservation Officer to be hired within the next two to five years. To create a truly effective preservation program this position is necessary. Although one staff member is an unofficially designated Preservation Officer for the Library, realistically he cannot function as such because of his other responsibilities.
3. Change the position of Preservation Technician from that of work-study to a full-time, permanent position.

The duties entailed in this position are now performed by a work-study student. Job interest is often minimal and turnover is high, requiring great expenditure of time in training.

C. Make preservation an important aspect of collection development and incorporate preservation policies in all the Library's collection development statements.

As costs of materials grow and budgets dwindle, it becomes even more important to weigh format and quality in selecting materials for the Library.

Although this recommendation can be achieved as preservation policies and collection development statements are written, the long range goal should be a comprehensive collection development preservation policy statement. (For the specific approach to formulating this policy see below the recommendations on physical treatment of materials.)

D. Reinstate the 1978-79 Microform Committee to re-examine its recommendations and deal with future preservation policy for microforms.

E. Develop and coordinate specific technical processing routines which include

preservation procedures as cited in the *Needs Assessment* report.

At the moment, preservation techniques are not an important aspect of the Library's processing procedures. Yet there are many areas involving binding, the use of acid-free materials, routine cleaning and repair, and, in general, the handling and storage of materials which can profit from more clearly delineated management practices. The standing committee can begin immediately to organize these practices at little or no cost.

ii. *Enviromental Factors – Recommendations*

A stable environment is one of the most important factors in preservation of library materials. While an environmental control system involves an initial outlay of some magnitude and entails continuous operating costs, an efficient system demonstrably reduces the deterioration of collections valued at hundreds of millions of dollars in the Dartmouth College Library. Further, a clean and comfortable environment decreases staff time used to repair or replace materials, promotes care in handling, and increases user satisfaction. The Study Team's recommendations in this section focus on the environmental problems of heat, humidity, lighting and pollution. Recognizing that the cost factors may be great, the recommendations are quite specific in some instances. Others, however, emphasize that solutions to existing problems may be achieved by a judicious cooperation with other efforts in which the College as a whole has a serious financial stake.

Substantial evidence in the literature on environmental control supports that:

–*Temperatures* should be kept at 65 degrees Fahrenheit ±5 degrees. With each increase of 10 degrees Fahrenheit, the deterioration rate of the collections doubles; conversely, the life expectancy of the collections rises proportionately with each drop of 10 degrees Fahrenheit.

–*Relative Humidity* should be maintained at 50% ±5%. Excessive variation and fluctuations of more than a few percentage points within a 24-hour period should be avoided.

–*Light sources* should be controlled to provide the lowest level of illumination necessary for a specific function. Windows and fluorescent lighting should be filtered to screen out harmful ultraviolet radiation.

–*Air intakes* should be equipped to filter air pollutants from the outside environment, as well as from within the Libraries.

–*Regular cleaning schedules* should be established to eliminate food, beverages, bacteria, insects, and rodents from the collections.

These steps may be taken at little or no cost to the Library:

3. **CONDUCT A REGULAR PROGRAM OF MONITORING THE ENVIRONMENT IN ALL LIBRARIES.**

With the assistance of staff in key areas of the Library system, the standing committee should begin immediately to record ultraviolet radiation levels, temperatures, and relative humidity, on a regular basis. Monitoring of candle-power can be done at six-month intervals to ensure that appropriate levels of illumination are maintained in the course of routine replacement of light bulbs or fluorescent lighting. It is essential to have data on all these conditions for a one year period to show seasonal changes and to substantiate problem areas. Even within the brief data gathering period for the *Needs Assessment* survey, some locations, for example Dana Library, showed wide fluctuations in heat and humidity.

4. **INFORM THE COLLEGE ADMINISTRATION OF THE NEED FOR STRICTER ENVIRONMENTAL CONTROLS IN THE LIBRARY SYSTEM AND SEEK ITS**

COOPERATION IN REDUCING HEATING AND COOLING PROBLEMS.

A. Although it may be economically out of the question to air-condition Baker Library, there are a number of temporary measures that can be taken to compensate for the present lack of environmental controls. These have been discussed in the Task Force Report on the Environment in the *Needs Assessment* study, but are highlighted here as:

1. Installation of good fans, with exhausts where appropriate, in Special Collections, Map Room, Sherman Library, and Level 1 of the Baker Stacks. (Approximate cost of a reliable Hunter fan is in the range of $250.-$500.) It is recommended that a heating/cooling engineer be brought in to discuss with the library staff the location and the number of fans needed.

2. Installation of humidity control devices in Special Collections, Sanborn House Library, and the Map Room. (Approximate cost of an individual humidifier/dehumidifier is about $150.-$250.) A heating/cooling engineer should also explore the possibility of humidification for Feldberg, Kresge, and Dana Libraries.

B. Cooperative efforts should be pursued to lower costs and protect library resources through college-wide environmental control.

1. The Library and the College should begin immediately to explore with Buildings and Grounds a reprogramming of the computerized heating and air-conditioning control system now in effect. This recommendation would place all Libraries in the exempt classification, along with laboratories, experimental areas, and other special sections of the College where uniform temperatures are required. (*See* Dartmouth College Energy Policy, re-issued October 1977, in Appendix A3 of the *Needs Assessment* study.)

2. Available expertise should be tapped for imaginative solutions to environmental problems. For example, the Library could seek a feasibility study from the Thayer School of Engineering for an active/passive solar energy system in Dana Library, a building which appears to be quite suited to this type of technological innovation. Dana Library, moreover, is already prepared for air-conditioning so that funding sources might be sought with confidence. In any case, no new library facility should be constructed at Dartmouth without adequate attention to environmental control by heating/cooling engineers.

In addition to fluctuations of temperature and humidity, improper lighting, improper shelving and handling, and pollutants can ruin library materials. The following recommendations, drawn from the *Needs Assessment*, address some specific examples.

5. **WORK WITH THE PROGRAM OF ENVIRONMENTAL MONITORING TO INSURE THAT PROPER LIGHTING IS AVAILABLE THROUGHOUT THE LIBRARY SYSTEM.**

The *Needs Assessment* study shows that fluorescent lighting in most of the Libraries is well within prescribed preservation limits for the emission of ultraviolet radiation of 75 microwatts per lumen. However, it is recommended that:

A. Filters be added to the rest of the fluorescent lighting in Special Collections, and timers be installed in the remainder of the stack lighting at Baker Library (To be completed by 1982/1983). Timers previously installed in some of the stack areas have already saved substantial amounts in lighting costs.

One energy conservation lighting measure that has worked against preservation has been the installation of mercury vapor lighting in the main hall of Baker Library and in the Jones Microtext Center. This type of illumination gives off extremely

high ultraviolet radiation levels (see *Needs Assessment* report, Appendix A8 and A10-1). Therefore it is recommended that:

B. Mercury vapor lighting should be eliminated within the library system, unless some way is found to fit an ultraviolet screen over each fixture. Filtered fluorescent lighting may be preferable, especially in the main hall of Baker Library where valuable materials are frequently on display. Alternatively, the display cabinets themselves should be fitted with UV filtered glass, or UV filters placed on existing glass. (Implement immediately)

If this proves to be an expensive project, fixtures closest to the display units should be de-activated until funding can be provided in the 1982/1983 budget.

Sunlight streaming through unprotected windows has also seriously hampered the preservation of library materials in most of the libraries on campus. Tests reported in the *Needs Assessment* study indicate that ultraviolet radiation could be almost eliminated by the use of curtaining or louvers. Therefore, it is recommended, through education and directives from the library administration, that:

C. Libraries should be required to use existing curtains, blinds, and louvers in strategic areas where resources are located. (Enforce immediately)

Kresge, Dana, and Feldberg Libraries would all benefit from a strict enforcement of the above recommendation. Baker Library would benefit from the installation of ultraviolet window filters in key areas, such as the Stefansson Room, the Frost Room, the Map Room, Stefansson Stack Level 2, and the Special Collections Librarian's Office.

Other areas which would also profit from this treatment include the Sherman Art Library and Sanborn English Library. Costs may be estimated at $1.50-$2.50 per square foot for Scotchtint UV window filters, and estimated life-span is 25 years. It is recommended that the first filters be requested in the 1982/1983 budget, with the final filters to be requested by 1984/1985.

6. **MAKE PHYSICAL FACILITIES FOR THE MOVEMENT AND SHELVING OF LIBRARY MATERIALS CONFORM TO PROPER PRESERVATION PRACTICES.**

Inappropriate handling and shelving is a major source of environmental damage to library materials.

A. All book drops should be examined in terms of need and for design which conforms to good preservation practice.

B. The open wooden crates used by Buildings and Grounds to transport library materials should be replaced by closed plastic containers.

C. Unbraced free standing book shelves should be crossbraced to prevent harm to people and books in case of accidents, such as the major stack collapse last year in the Dana Library.

7. **KEEP PHYSICAL FACILITIES FREE OF DIRT, DUST, VERMIN AND OTHER POLLUTANTS.**

Regular cleaning schedules must be kept to eliminate problems of ambient dirt, food, bacteria, insects, and rodents in the Libraries. The management of these schedules should be done in close cooperation with Buildings and Grounds.

A. A major program of vacuuming book storage areas should be started as soon as possible with the aid and advice of Buildings and Grounds. Existing air intakes should be examined frequently and filters changed when necessary, especially since the outside environment of Hanover has been subject to excessive dust in recent years from road and sewage construction and this is likely to continue for some time.

B. A regular extermination program should be maintained for the library system. Food and drink, which attract insects and rodents as well as directly damaging materials, must continue to be prohibited in the Library.

C. Audio-visual and other mechanical equipment must be regularly cleaned and serviced, by outside contract if necessary.

iii. *Physical Protection of Library Materials – Recommendations*

Protection from physical disaster is a vital element of any library preservation plan. The two most likely, and worst, sources of potential disaster at Dartmouth are fire and water. Not only must the Library work to alleviate these and other threats, more important, it must be prepared to face a disaster promptly if one strikes. Since an immediate response is essential in a crisis situation, the Librarian of the College should:

8. **APPOINT A DISASTER TEAM, CHARGED WITH THE RESPONSIBILITY OF PREPARING FOR AND RESPONDING TO CRISES IN THE DARTMOUTH LIBRARY SYSTEM.**

The Disaster Team should be appointed within three months following the Study Team's final report. Its first task will be to revise the Disaster Manual presented in the *Needs Assessment* report. The manual should be expanded to include record keeping procedures for damaged materials; evaluation of the supplies/equipment list, with purchase of items deemed necessary; arrangements to make freezer facilities available, including contracting for their use. The final Disaster Plan should be drafted with the aid of an experienced consultant. Copies of the completed manual should be given to the Librarian, Disaster Team Members, and Library Directors, other College Librarians, Baker section heads, and janitorial offices. Disaster Team members and Library Administrators should keep a copy of the manual at home so that they can quickly locate other team members, suppliers, etc., if necessary.

When the manual is completed, Disaster Team members should turn their attention to improving the Library's general state of preparedness. The following suggestions are listed in the *Needs Assessment* report: existing alarm systems should be checked annually; emergency instructions and phone numbers should be posted near every phone where they might be needed; fire extinguishers should be made easily visible, particularly in stack areas; library staff should be trained to handle a water and/or fire damaged materials.

The Library faces enormous difficulties in fire prevention and/or control. Unenclosed stairs and ancient wiring, two problems typical of older buildings, illustrate the urgent need for the recommendations that follow. Baker, Sherman, and to a lesser degree, Sanborn, were constructed before the existence of good fire codes. Thus open stairwells and, in Baker, open-tier stack construction make it impossible to restrict the flow of air feeding a fire, should one break out. Although Sanborn House has just been completely rewired, much of the original wiring still remains in Sherman and Baker; these libraries should be inspected by Building and Grounds to see if the wiring is adequate.

9. **ESTABLISH POLICIES AND MAINTAIN FACILITIES IN ACCORDANCE WITH FIRE PREVENTION PRACTICES.**

A. Initiate and continue a routine inspection system with the local fire department.

At present, Dana is the only Library to be inspected by the Hanover Fire Department. All Libraries should take advantage of this service which familiarizes the Fire Department with each building and the special features of particular areas. The Libraries would also benefit from the Fire Department's ability to recognize possible fire

hazards.

B. Invite an experienced fire inspector to visit the library system.

An inspector from Aetna, the College's insurance company, will come free of charge upon request for a one or two day visit. He may be able to point out additional fire hazards that this study has missed. Since it costs the Library nothing, the Disaster Team could request such a visit as soon as it is formed.

C. Establish regular in-house inspection schedules for all the Libraries in the system.

In a library system of this size, all areas, particularly remote ones, must be inspected on a daily basis to spot any potential problems. This should be an established staff routine.

The importance of building security checks should be stressed to those responsible for the Library at closing time, making certain that all rooms are vacated, windows are closed, and equipment is turned off. Monitoring should also be regularized in the potential disaster areas discussed in the *Needs Assessment* report.

Wiring in all processing areas should be examined for overload and appropriate placement of outlets. Some of the wiring in these locations appears inadequate; electrical cords cross the open floor and there are too few outlets.

D. Establish policies to maintain facilities in compliance with accepted fire prevention practices.

One of the most immediate actions the Library can take is to eliminate smoking in all stack and audio-visual areas. Smoking might also be banned in the Tower Room and Sanborn House Library, as these are both entirely wooden interiors, furnished with drapes and upholstered chairs. Consideration should be given to fireproofing the drapes and treating the wooden interiors with a fire-resistant material.

10. **INSTALL FIRE DETECTION AND PREVENTION SYSTEMS IN ALL AREAS CURRENTLY UNEQUIPPED.**

A. Install detection systems.

These should be placed throughout the library system and connected with the campus police and Hanover Fire Department switchboards to insure immediate response in case of fire. The Study Team recommends beginning with the following high priority areas: Tower Room, Sanborn House, Microtext (especially the Newspaper Reading Room, Workroom, and Storage areas), and Documents Mezzanine. This should be completed within three to five years, with other areas added as funding becomes available.

B. Install sprinkler systems in higher risk library storage areas.

A sprinkler system is an effective fire prevention device. Though it has been a commonly held view in the library field that sprinklers pose more of a hazard than a protection to collections, recent literature has swung the other way: with the improvement of safety systems which prevent accidental leakage and the development of independently functioning sprinkler heads, the benefit far outweighs the potential risk. Furthermore, improvements in drying techniques make the salvage of water-damaged materials much more economical than replacement of those destroyed by fire, and as previously noted, replacement of many valuable research materials is not possible. It would be ideal to equip all of the library storage sections with sprinkler systems; the Study Team sees this as a long range goal. However, sprinklers should be installed in the next five to ten year time span in those areas with poor accessibility: Baker and Sherman first level stacks and Paddock. As a second priority, sprinklers should be placed in each level of Baker stacks. This may alleviate the need to seal stairwells and stack tiers.

C. Install a Halon detection/protection system in Baker's Special Collections and in the Quinn Room in Dana.

Because of the concentrated value of these collections, it is highly recommended that a Halon system (a fire suppressant system that causes no damage to materials) be installed in these areas. This is a five to ten year goal.

11. **IMPROVE DRAFT CONTROL IN THE OLDER LIBRARY BUILDINGS.**

Solution of the problem of draft control will be extremely expensive. Open-tiered stacks should be sealed with fire-resistant material. All stairwells should be enclosed, and fire-doors should be installed between the main and annex stack areas in Baker, levels one through four. The Special Collections stacks should be closed off from the general stacks, to protect the valuable materials shelved there. Because of the expense entailed by these recommendations, the Study Team assumes a five to ten year period for their achievement.

There are other recommendations in the *Needs Assessment* report which would have less impact, but could be carried out more easily. The most important of these is provision of more or different fire extinquishers in areas cited as inadequately protected. To help control drafts in the event of fire, fuse links should be placed on the doors of elevators and book lifts. Heat sensitive automatic dampers have been installed in the ventilating systems, and all pipes and ductwork have been firestopped in the newer library buildings. The Library should request Buildings and Grounds to determine if this has also been done in the older buildings. These recommendations could be accomplished over a three to five year period.

A study of past crises in the Dartmouth Library system shows that most problems have been caused by water, either from infiltration or, as mentioned earlier, from broken water or steam lines within the buildings.

12. **IMPROVE THE LIBRARY'S PROTECTION FROM POTENTIAL WATER DAMAGE TO ITS COLLECTIONS.**

It is impossible to address prevention of water damage from outside sources in a general way. This can be dealt with only on a case by case basis; for example installation of sump pumps in areas that frequently flood, or repair of a leaking roof. However, some steps can be taken to protect collections from internal water systems. The greatest threat comes from the steam lines in the older library buildings (Baker and Sherman). Many of the lines lie openly exposed in the stacks of these libraries. Shielding designed to divert water and/or steam away from the collections should be installed within three to five years. Further, all standpipe hoses in the library system should be made of a synthetic material which resists deterioration, and foghead (fine mist) attachments should be added to the standpipe systems. In both Sherman and Baker Special Collections there are steamhead humidifier units that are not operating correctly and are a menace to the materials nearby. These should either be upgraded or disconnected within a one to three year period to prevent further future problems.

Because of the difficulty in protecting collections from water damage, it is essential that the Library:

13. **INSTALL APPROPRIATE ALARM SYSTEMS TO WARN OF THE PRESENCE OF WATER.**

High-humidity alarms should be installed, primarily to detect steam leaks, in the following areas in Baker: stack levels one through nine; the Newspaper and Microtext

storage areas ; and Special Collections (all stack areas and the Treasure Room). Standing water alarms should be installed in the lowest floor at Dana and Sherman; the floor above Kresge (for a lab shower); and Paddock; as well as these sites in Baker: Map Room, Microtext storage, Stack level one, Special Collections stacks. Despite the expense, these alarm systems are highly desirable and therefore should be installed gradually over a period of five years.

iv. *Physical Treatment of Materials – Recommendations*

Physical treatment of books and other materials has been a constant conern in the Dartmouth Libraries. The information gathered during the Preservation Planning Program has provided a basis for evaluating established practices as well as indicating avenues of intensive investigation for future policies. The standing preservation committee will be able to effect both short and long-term changes related to the physical treatment of materials by centering a program on two major sets of issues.

The first set of issues is the organization and management of existing library routines so that they conform to good preservation practices.

14. **DEVELOP AND ENFORCE A COHERENT SET OF POLICIES FOR THE HANDLING OF BOOKS, DRAWING ON THE LARGE NUMBER OF INDIVIDUAL RECOMMENDATIONS CITED IN THE NEEDS ASSESSMENT REPORT CONCERNED WITH CURRENT SHELVING, REPAIRING, BINDING, AND PHOTOCOPYING PRACTICES.**

There is also a similar number of recommendations which apply to the daily handling of serials, microforms, and sound recordings in the *Needs Assessment* report. If carried out, these recommendations can upgrade usual routines to meet preservation standards cheaply and quickly. The primary resource required is a central agency, the Standing Committee on Preservation, to organize policies, with a concomitant program of continuing education and firm management to maintain proper practice.

15. **FOR THOSE ELEMENTARY PRESERVATION PRACTICES THAT MAY REQUIRE SOME OUTLAY OF EQUIPMENT, DEVELOP A LIST OF DESIRABLE ACQUISITIONS TO BE INCORPORATED IN VARIOUS ANNUAL DEPARTMENT BUDGETS.**

Some of the recommendations in the *Needs Assessment* survey require small expenditures, such as switching to acid-free materials for processing, marking, binding, and repair of paper-based products; some involve larger one-time purchases, for example more cabinets; and some, such as the creation of archival duplicates for long term preservation of materials, may be quite expensive. The preservation committee as the coordinating body could make a more precise survey of needs and costs and could request within the next fiscal year many of the less expensive but highly useful equipment changes. Priorities could then be set for future purchases, some of which could easily be kept within range of annual departmental budgets, while others might require special outlays.

The second set of issues concerns how to approach the physical treatment of a very large and very old collection of materials.

All old collections—and for the most part one speaks here of books, manuscripts, maps, and other paper materials—have a very high proportion of preservation problems. When the collection is quite large the proportion, whatever its specific percentage, approaches the unmanageable unless some criteria for preservation are applied, and these must include consideration of cost. Application of criteria demands the ability to decide which materials *ought* to be saved (a collection department decision to be made by

qualified bibliographers), the knowledge of what *can* be saved (a preservation specialist's expertise), and a means of distinguishing these items within a massive collection (a practical mechanism to identify such material). There are analogous requirements for non-paper materials and, presumably, similar criteria are necessary. To deal with the mammoth problem presented by the size and age of the Library's collection, it is recommended:

16. **EXPAND THE COLLECTION DEVELOPMENT FUNCTIONS OF THE LIBRARY TO ENCOMPASS THE NOTION THAT PAST, PRESENT, AND FUTURE ACQUISITIONS ENTAIL A DECISION CONCERNING THE PRESERVATION WORTHINESS OF ALL ITEMS ACQUIRED BY THE LIBRARY.**

The preservation committee should begin immediately to integrate its recommendations on physical treatment with the activities of the Library's Collection Development Committee. It is very likely that the forthcoming movement of materials to storage, especially the examination of monographs for that purpose, will be a practical place to begin seeking workable solutions to the problems described above. The move provides a focus for investigation of the specific statistical and cost factors which must be determined before there can be any meaningful attempt to meet large-scale preservation needs. The initial outlay, then, will be in staff effort to decide what should be saved and what the costs will be. This study, which can begin now, will furnish the first solid evidence of the real cost of preserving materials in the Dartmouth College Library.

v. *Education for preservation – Recommendations*

Education of Library staff and users is an encompassing concern unifying all aspects of the preservation program. Time and again, the Study Team was made aware, often painfully, of a general lack of understanding about preservation concepts and a need for appropriate training. The standing preservation committee could construct and oversee a multi-faceted educational effort. The following recommendations apply to this component of the total preservation program.

17. **DEVELOP A PROGRAM OF EDUCATION FOR THE STAFF OF THE LIBRARY INVOLVING BOTH THEORETICAL AND PRACTICAL APPLICATION OF ALL AREAS OF PRESERVATION.**

This recommendation proposes educational programs which will draw on internal expertise as well as outside resources. Within the system, slide presentations and demonstrations could be developed. For example, the staff of the bindery could present a workshop on binding concerns and techniques. In addition, new staff members should be informed of preservation processes as part of their orientation to the Library system. It is also desirable to pursue the possibility of special training in preservation for at least one member of each department with whom preservation decisions reside. Outside resources might include seminars and workshops offered by various conservation agencies, library schools and professional organizations. Visits to appropriate programs at other institutions might also be arranged.

Another important part of this recommendation is a formal training session in disaster preparedness to be held at least once a year. This session could be coordinated with the training programs mentioned previously. It should include emergency procedures, the handling of wet materials, and fire safety.

Finally, there should be administrative support for staff members to take advantage of outside educational opportunities. These might include attending conferences and workshops, or possibly formal course work.

18. **DEVELOP A PROGRAM FOR THE USERS OF THE LIBRARY AND THE DARTMOUTH COMMUNITY.**

This recommendation focuses on generating in users awareness of preservation concerns through media such as a permanent library exhibit devoted to preservation. information in orientation programs, and publications distributed to Library patrons. In addition, information channels to promote preservation issues should be created, including the Council on Libraries and the Buildings and Grounds Department among others.

Both of these recommendations could be achieved within a period of a year with little cost.

III. IMPLEMENTATION STRATEGY

The Study Team believes that a three part approach should be taken to carry out the recommendations listed in the previous section. The first part of the strategy is continued administrative support of the preservation program as outlined in the recommendations. The fact that the Librarian was willing to commit the time of six library officers to the present project indicates her support for preservation of the collections. Further steps should be taken which require support of policy changes and revisions that have been recommended by the Study Team, as well as efforts to obtain additional staff and funding in the future. Finally, there will need to be administrative support of the recommendations when presented to the wider administration of the College.

The second part of the strategy is the appointment by the Librarian of a Standing Committee on Preservation. This committee should be charged with putting the recommendations into practice and with the further investigation of points raised in the recommendations. The committee should also be responsible for the overall supervision of preservation within the Libraries. This should include the identification of funding, the oversight of preservation practices, the recommendation of policy changes to the appropriate Director and the Librarian, the acquisition of new and appropriate information relating to preservation, and the development of necessary educational programs for the library staff and users.

The third measure is the appointment of a full-time Preservation Officer for the Library. This officer should be a fully qualified conservator who should be responsible for the day to day preservation operations within the Library. It would be the Preservation Officer's charge to oversee the cleaning of library materials, to repair and restore materials, to consult with colleagues on questions and problems relating to preservation, and to provide advice to the Librarian. The Study Team, it must be reiterated, is fully cognizant of the fiscal constraints upon the College and the difficulty of creating a new officer-grade position. However, there is no member of the current library staff who is qualified to serve as a Preservation Officer. While the members of the Study Team have been immersed in the literature of preservation for many months, the Team cannot stand in place of a well-trained conservator. It is hoped that the Librarian will carefully consider this aspect of the strategy.

Taken together, administrative support, the appointment of a Standing Committee on Preservation, and the appointment of a Preservation Officer provide a framework for the implementation of the recommendations presented by the Study Team. They also could determine the development of a comprehensive, long-range program that will have great impact on the preservation of the Library's holdings for many years to come.

APPENDIX I: SOURCES

Sources of information for the report and its recommendations were many and varied. A wealth of knowledge relating to preservation, often conflicting, has become available within the last ten years. Direct citations or footnotes, however, were omitted from the text of the final report so as not to weigh down the reader. It should be made clear that no fact, statement, or recommendation has been included that cannot be supported in the literature or in data gathered by the Study Team and the Task Forces.

Among the very useful sources were the materials provided by the Office of Management Studies of the Association of Research Libraries. These consisted of a series of five Technical Resource Packets as well as offprints of articles, pamphlets and the like. As a result of the time spent by the OMS consultant, Pamela W. Darling, in compiling this information, the Study Team and Task Forces had available a substantial body of materials which was heavily used.

Another major source of information for these recommendations is the *Needs Assessment* report. This document discusses in detail five major aspects of preservation within the Library. The Table of Contents will be found as part of this appendix. All recommendations are a direct result of problems and needs enumerated in the report, copies of which are available for use in the Library.

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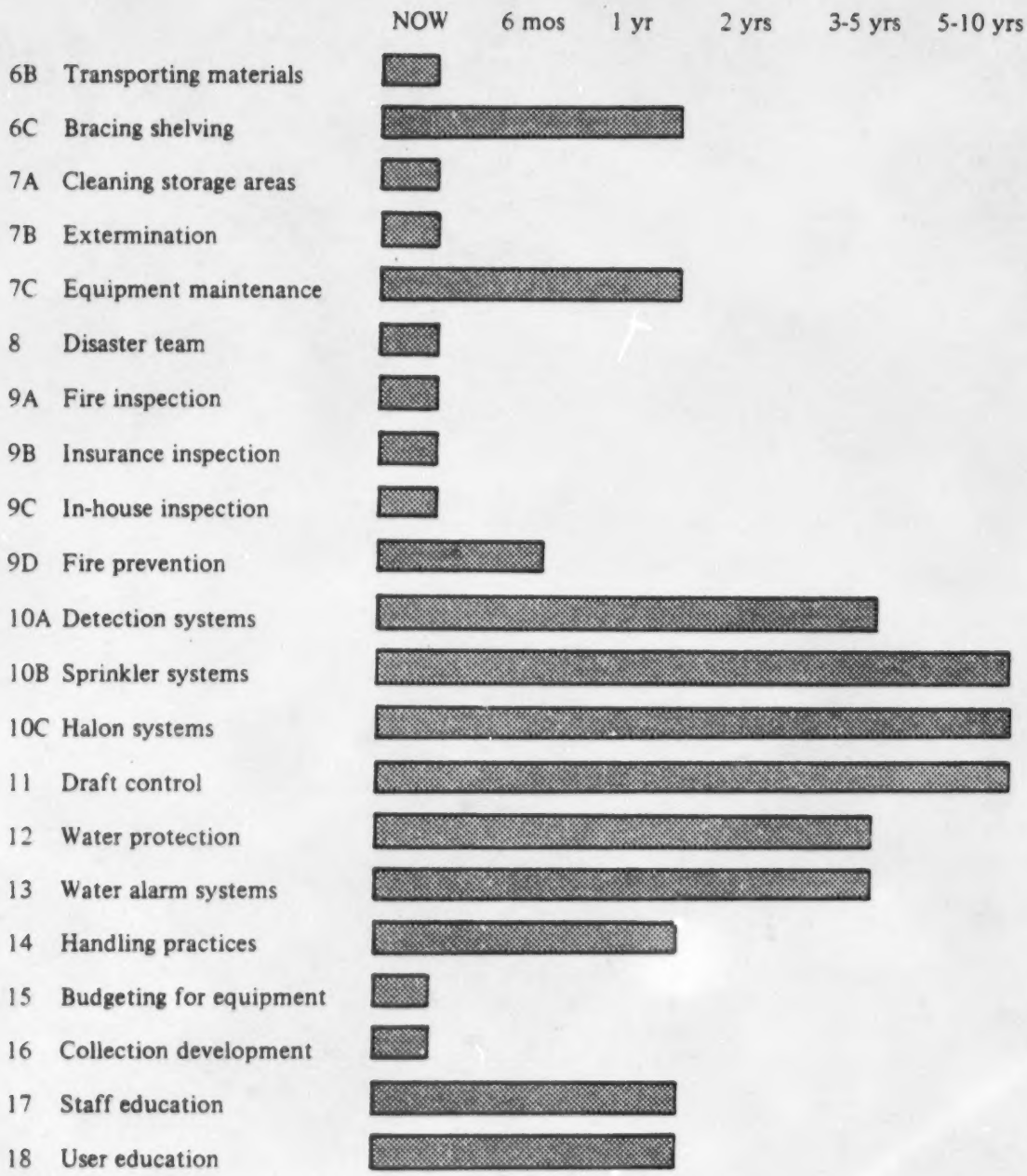
NOW
6 mos
1 yr
2 yrs
3-5 yrs
5-10 yrs
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